

Abstract of the Disclosure

5 The invention consists of recombinant gene expression vectors and vaccines useful in immunization of a host against an antigen and methods for use of such vectors and vaccines. In particular, the recombinant gene expression vectors of the invention are plasmids, cosmids or viruses which include non-coding, palindromic regions of single or double-stranded DNA or RNA polynucleotides which include at least one cytosine-guanine dinucleotide motif in each palindrome. These polynucleotide regions of each expression vector are immunostimulatory and serve as adjuvants to vaccination protocols against target antigens. Most preferably, the recombinant gene expression vectors of the invention are naked; i.e., non-viral vectors not associated with a delivery vehicle such as a liposome. The invention also includes live viral vaccines wherein the viruses include immunostimulatory polynucleotides of the invention. According to a preferred method of the invention, a target protein antigen is administered through its expression by a recombinant gene expression vector which contains the non-coding, immunostimulatory polynucleotides of the invention. In the most preferred embodiment of the method of the invention, the recombinant gene expression vector is administered to a tissues of the host which contain a relatively high concentration of antigen presenting cells (e.g., skin or mucosa) compared to other host tissues.